



ADAPT-Builder 2019 Release Notes

November 2019

Feature Enhancements

This release of the program features major enhancements in productivity, scope, and accuracy.

The following is a summary of the principal enhancements:

Building Design Codes

Hong Kong Building Department Certified

2nd Order P-Delta Analysis

The program now includes the option to run 2nd-order analysis for geometric non-linearity ("big" P-delta) based on the compilation of the elastic and geometric stiffness matrices. A new analysis/design option type for P-delta is included in which combinations can be singularly run for 2nd order effects or processed as a batch based on a combination used to obtain the geometric matrix. Graphical analysis results similar to regular combinations can be obtained for P-delta combinations. These results can be utilized for the design of columns.

Drift and Moment Amplification Factors

With the new P-delta feature, the program graphically reports drift and moment amplification factors (2nd/1st order results) for local axes, RR and SS, as well as the combined global results. The program code checks against a user-defined value set in the Result Browser.

Strip Modeling Dynamic Editor

A new and improved Strip Modeling Dynamic Editor includes tools used to more rapidly model and modify support lines and design strips. These include:

- Support Line Wizard – creates a support based on a construction line defined by snap points along the strip path.
- Support Line Limits – Changes selected support line design criteria and tributary limits for the design strip.
- Wall – allows the user to set constraints for how walls are considered for design strip generation.
- Display- Sets the support line display for Direction, Criteria and Width Limit

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Splitters

New and improved splitter functionality. The use of splitters has been simplified to creating a boundary that the tributary edge extends when the width is required to be limited to either side. Splitters are no longer required for any other purpose as the program has been improved to recognize support line nodes at any location and properly generate strips.

Effective Flange for Beams

The program now includes the option to calculate the effective flange and properties of beams when the support line is set to Beam criteria. The design of the beam sections is performed using the effective properties. The component of stress related to the precompression uses the full tributary area of the section as does the graphical precompression result. ACI and EC2 calculations for effective width are supported.

Longitudinal Reinforcement as Area of Steel on Design Strips

The Result Browser includes graphical reporting options for design sections to include the area of steel for provided, required and base (user-defined) reinforcement as well as the area of steel/section area (ρ).

Ramp Modeling

Modeling of ramps is now supported in ADAPT-Builder. Ramps are considered analytically only without tendons. Longitudinal and transverse beams can be modeled at ramps with options to automatically offset the beams as well as offset walls and columns supporting ramps. Ramps are required to be modeled in the same plane and the program constrains the graphical input as 3-point input to enforce planar modeling.

Beam Offsets

Beam coordinate definitions now include the ability to create unique offsets at the beam start and end points necessary to support inclined beams.

Punching Shear Improvements

New improvements have been made for punching shear according to ACI318-14. These include:

- The option to consider critical sections outside the shear reinforced zone with either a rectilinear or octagonal-shaped critical section. ACI318-14 Sections 22.6.4.2, 22.6.6.1
- The option to apply two-way shear provisions for minimum reinforcement for seismic drift. ACI318-14 Sections 18.14.5.1.
- Application of minimum two-way shear reinforcement at critical sections is based on the requirement at the first section $d/2$ from face of support.

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Drift XLS Reporting

New XLS reporting is available for lateral drift. New reports include list of vertical stations arranged top-down with column coordinates and elevation, X/Y/Global displacements at top and bottom of columns, drift at columns with code check, maximum drift data arranged for easy plot, average story drift, and story drift plot data.

Combination Cloning

A new cloning feature has been added to clone multiple combinations in a single instance and/or to clone combinations as P-Delta types.

FELT 3D and Long-Term Losses

When the PT Shop Drawing module is enabled, the program gives new input and functionality for the calculation of long-term losses for unbonded tendons and bonded tendons stressed at the same time. Additional related features include:

- FELT 3D Report – a compiled PDF report summarizing tendon loss calculations including graphical views of the tendons horizontal and vertical profile and the loss diagrams.
- Drawing Editor Chair Groups – Allows the user to input on-demand chair bar maximum spacing and chair bar extensions for graphical output of tendon support bars.

Bug Fixes

This release includes corrected bugs and improvements over version 2018.3. A detailed description is provided in the log file, **LOG_Builder.txt**, in C:\Program Files (x86)\ADAPT\ADAPT-Builder 2019.

Minimum System Requirements

64bit PC - Windows 7/Windows 8/Windows 10

Available hard disk space of 500 MB minimum
Memory – 4 GB RAM or greater

Processor speed – Single- or Multi-Core Intel processor or AMD equivalent. Highest attainable CPU speed rating is recommended.

Compatibility with Other ADAPT Products

Backwards compatible through save as function to Builder v2012. Compatible with ADAPT-PTRC v2018 and v2019 (to be released November 2019) through use of the design strip export tools.



Available Documentation and Other Learning Resources

Program manuals:

ADAPT-Builder 2019 Graphical User Interface Quick Reference
ADAPT-Builder 2019 Getting Started Guide/User Manual
ADAPT-Builder 2019 Tutorial
ADAPT-Floor Pro Basics 2019 User Manual
ADAPT-Floor Pro 2019 Tendon Modeling Supplemental Manual
ADAPT Wall Designer Operation and Theory Manual
ADAPT-MAT Basics 2019 User Manual
ADAPT-Modeler User Manual
ADAPT-Builder Criteria Settings
Tips and Tricks in Modeling with ADAPT-Builder

Instructional Videos:

<https://www.youtube.com/user/ADAPTSupport>

More Information

For up-to-date info on ADAPT software, go to:
<http://www.adaptsoft.com/updates>.